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ABSTRACT

This paper represents introductory class material on linguistics. A definition of "linguistics" is attempted through a definition of "science" and "language." The American structuralist conception of linguistics as a science is characterized by the view that linguistics is the application of the inductive methods to the collection and analysis of language data. The generativist conception of linguistics as a science is characterized by the view that the description of a language is a deductive theory in which the sentences of the language are generated from rules of grammar. The language that is studied by a linguist is characterized as "human" and "natural." These terms are examined: human language as opposed to animal communication; and natural language as opposed to artificial and scientific language. Finally, linguistics is distinguished from other disciplines which are also concerned with human language by the fact that language is the primary object of study in linguistics, while in other disciplines language is ancillary. Finally, various branches of linguistics are discussed as they relate to structural and synchronic linguistics. (AM)

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WHAT IS LINGUISTICS?

Paul L. Garvin

Most linguists, when asked to define their field, say that linguistics is "the science of language". This is not an adequate definition for a number of reasons. First of all, it is not clear what linguists mean when they use the term "science". Secondly, the term "language" can be used in a number of different ways and again it is not clear in what way linguists are using the term. Finally, it is quite evident that linguistics is in fact not the only science of language, since fields such as sociology, psychology, or anthropology, not to mention speech communication, as well as other disciplines, also deal with language. It is thus necessary to define the term "science of language" a little more precisely in order to show in what way it relates to the field of linguistics.

First, then, the term "science". Linguists have given a great deal of attention, both in the published literature and more informally, to the question of what a science should be like, and more specifically, to the question of how linguistics can become a science. This is a question raised in all the social sciences, and as in the other social sciences, there is a good deal of difference of opinion among linguists as to what the answer should be. Two major conceptions of the nature of science and of linguistics as a science can be singled out; these correspond to two major trends in American linguistic thinking.

The first of these trends dominated the American linguistic scene until the late fifties. Most linguists refer to it under the label of American structuralism. Its conception of science is largely based upon that of behaviorist psychology. Its originator and most important representative is the late Leonard Bloomfield; a number of his followers, sometimes called the neo-Bloomfieldians, have elaborated his thinking. The following points characterize the American structuralist conception of linguistics as a science. (1) Science is based on the scientific

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method. The scientific method consists in the manipulation of the observable data pertinent to the particular field of science, by experiment or otherwise, with the purpose of deriving valid generalizations from the application of method. (2) For linguistics, the science of language, the observable data are instances of speech behavior, often referred to as speech events. (3) The major purpose of linguistics is therefore the development of a precise methodology for the collection and manipulation of speech data and for deriving meaningful generalizations from them. This application of the scientific method to language data is called linguistic analysis; the major aim of American structuralism can thus be summed up as the development of methods of linguistic analysis.

The second major trend has dominated the American linguistic scene since the late fifties. Unlike the first mentioned trend, its popularity has not been limited to American linguistics but has been world-wide. Most American linguists refer to it under the label of generative grammar; its followers are often called generativists. The originator and most important representative of the generativist approach is Noam Chomsky; at present, his is not the only approach to generative grammar, but his name is still the best known among those who are interested in this view of linguistics. The generativist conception of linguistics as a science is characterized by the following points. (1) Science is based on theory construction. (2) A theory is a deductive system, that is, a system in which all conceivable consequences are deduced logically from a set of primitive notions. (3) In the case of linguistics, the primitive notions of the theory are a set of rules of grammar, and its consequences are the infinite set of the sentences of a language that can be accounted for by means of these rules. In the terminology of generative grammar, it is said that the sentences of a language are generated by the rules.

Both the American structuralist and the generativist conceptions of linguistics as a science are one-sided: the former overemphasizes the role of

method in science, the latter the role of theory. The one constant running through these two conceptions of linguistics, as well as through other conceptions that have been proposed in the field, is that the linguistic study of language is an organized scholarly activity in which insights and results are obtained by means of logical reasoning based on a previously agreed upon conceptual scheme. Ideally, this conceptual scheme should provide a balance of method and theory, but as was stated earlier, this has not been the case with the major trends in American linguistics. The purpose of the material presented here is not to provide a critique of other approaches to linguistics, but rather to set forth what is considered to be a balanced view of the linguistic study of language. At the same time, let it be stressed again that this is not the only possible view of linguistics, nor is it the one most widely held among American linguists.

This much about the linguist's view of science. Now, what about the linguist's view of language?

The term "language" is used in a rather broad sense both in everyday parlance and in the terminology of many sciences. Thus, people speak of the "language of love", biologists speak of the "language of the bees", computer scientists speak of "computer languages", mathematicians speak of mathematics as a language, logicians speak of the "language of the propositional calculus", et cetera. All of these uses of the term "language" are quite common and cause no difficulty to any native speaker of English. At the same time, it is evident to most English speakers that these uses of the term "language" refer to a different type of phenomena than when the term is applied to languages such as English or French, or for that matter Cherokee or Swahili. Furthermore, anyone who has had dealings with linguistics knows that the kind of languages that linguists deal with are those like English, French, Cherokee, or Swahili, and not the other kind. What, then, is the difference between these two kinds of languages, and how can the linguist's language be more closely circumscribed?

There are at least two attributes which languages of the kind like English, French, Cherokee, or Swahili, have and which languages of the other kind lack. One is that they are human languages, and the other is that they are natural languages.

The term "human language" appears to be self-evident. By the use of this term, it is possible to differentiate all the many languages used by the peoples of the world from modes of communication used by species other than man. This will differentiate the language of man not only from the previously mentioned language of the bees, but also from all the other forms of communication, some of them quite sophisticated, used by other animal species. While this distinction appears to be fairly obvious, a number of interesting problems arise the moment one inquires into the exact nature of the differences between human language and animal communication. These problems have been of interest not only to linguists, but also to psychologists, anthropologists, biologists, as well as scholars in other disciplines. All observers seem to agree that the fundamental difference between the two types of communication can be characterized in terms of the far greater complexity of human language as compared to any form of animal communication. Where there are differences of opinion, these relate to the question as to whether the differences between human language and animal communication are a matter of degree or of the essence. This is related to the conception of the evolution of man within the animal kingdom. How is the origin of human language related to the transition from animal--that is, man's subhuman ancestor or ancestors--to man? Here again, there is a wide area of agreement: most scholars accept the notion that language in the human sense is one of the essential characteristic attributes of man, and that therefore the origin of man as a species is closely linked to the origin of language. The disagreements that do exist relate to the nature of the transition from animal communication to human language. Most linguists and a great many anthropologists think that this is a

case of abrupt transition. Opinions in other fields are more evenly divided between the notion of an abrupt transition and that of a gradual one.

One approach to finding an answer to the question of the nature of the difference between human language and animal communication has consisted in a series of attempts to teach higher apes, more specifically chimpanzees, some form of human speech. These attempts were conducted primarily by psychologists interested in and familiar with animal behavior. The first experiments along these lines consisted in attempts to teach chimpanzees actual vocal speech. These experiments largely failed mainly because that portion of the anatomy of the ape which corresponds to the human vocal tract lacks the structure required for the production of human-like speech sounds. More recent experiments have tried to circumvent this difficulty by attempting to teach chimpanzees a form of communication which resembles human speech in its structure without requiring a vocal means of expression. Two modes of communication have been considered in these experiments: In one case, a chimpanzee was taught to communicate by means of gestures, in the second case a chimpanzee was taught to communicate by means of visual symbols inscribed on plastic tablets mounted on metal and displayed on a magnetized board. In both cases the chimpanzee in question was able to communicate on a fairly high level of sophistication, but most linguists who have been aware of these experiments would agree that this mode of communication, however successful, is still a good ways from being a genuine form of human language. Another point that has been made in this connection is that, no matter how sophisticated a communication system the chimpanzee has been able to learn, this learning process was initiated by a human experimenter. That is, it is not a form of communication which has arisen spontaneously within that species, but one which has been introduced to it by human mediation.

The evolutionary perspective, as well as the animal experiments, have served to underline two basic questions that have been of interest to the linguistic

profession for some time. The first of these has to do with what one might call the biological prerequisites for human speech. Broadly speaking, two systems of the human organism are involved here. The first of these is the respiratory system, more specifically its upper portion which contains what most linguists like to call the vocal tract or articulatory tract in which speech is produced. The second of these, of course, is the nervous system, and more specifically the brain. The articulatory tract has to do with the human capacity for vocalization; the brain has to do with man's ability to handle a complex communication system. The human vocal tract is characterized by the following features: a highly flexible pair of vocal cords located in the throat; two connected resonating cavities, those of the nose and mouth (called the nasal and oral cavity respectively); a highly flexible tongue which together with the movement of the lower jaw is capable of modifying the shape of the oral cavity and furthermore has the capacity for closing it off completely; a pair of lips which can come to a complete closure without a necessary gap created by excessively protruding teeth. The human brain is characterized by significantly greater size and complexity than any animal brain, particularly as regards the cerebrum, the two sides of which (called hemispheres) are not only very massive in size, but also are highly convoluted which gives them their characteristic shriveled appearance; thanks to this convoluted shape, the surface of the human cerebrum is greatly increased by comparison with that of subhuman animals. This increased surface in turn appears to be the anatomical prerequisite for the functioning of man's so-called higher mental processes, among which language is usually included.

The second question arising in this connection is that of the characterization of the complexity of human language as a form of communication; this question is basic to the linguist's theoretical understanding of human language, and will be discussed in some detail in the later sections of these materials.

So far, the notion "human language" has been discussed. What about the

notion "natural language"?

The term "natural language" is less commonly used and understood than the term "human language". While the notion of human language is most commonly opposed to that of animal language, the notion of natural language is opposed to that of artificial language. The term "natural language" has thus come into use ever since in fields like logic and computer science there has been an interest in language in general, and more specifically in artificial languages. This is, however, not the only area in which artificial languages are used.

As the terms imply, a natural language is one that has come about "naturally" in the course of human history, while an artificial language is one that has been created "artificially", that is, a language that has been deliberately designed for a particular purpose. In logic, artificial languages have been created for the manipulation of logical concepts and for the performance of logical operations. In computing, artificial languages have been created to facilitate the processing of data by computer. In other fields of science and technology, artificial languages are used for similar purposes: that is, those of notation and data manipulation. Logical languages, computer languages, and artificial languages used in other sciences can be said to belong to a single category, namely, that of scientific languages. An entirely different type of artificial languages are the so-called international auxiliary languages. These are languages that have been created for the purpose of facilitating ordinary verbal communication among speakers of different human languages in the hope of thereby contributing to the growth of international understanding and the promotion of international relations. The best known of these international auxiliary languages is Esperanto.

What, then, are the most significant differences between a natural language and an artificial language?

Artificial languages of both types, that is, the scientific ones as well as the international auxiliary ones, have been created with the desire of eliminating

what were considered some of the basic flaws of natural languages. Grossly speaking, these flaws can be summed up in one fundamental objection: natural languages are not regular enough. The irregularities of natural languages can be divided into two major categories: formal and semantic. Formal irregularities include primarily those cases in which a given grammatical form exhibits a shape other than expected. An example of this are irregular plural forms in English, such as "oxen" or "children". Formal irregularities are very commonly encountered in language study; what student of French or Italian does not remember all the troubles he has had with irregular verbs! Semantic irregularities have to do with the meanings of the terms used in a language. Three types of semantic irregularity are most often talked about: ambiguity, synonymy, and homonymy. Ambiguity refers to the situation in which a given term has more than one meaning and it is not always clear which of the meanings applies. Synonymy refers to the situation in which several terms have closely related meanings and it isn't always clear how these related meanings differ from each other. Homonymy refers to a situation in which several distinct terms with different meanings have the same phonetic or graphic shape. Clearly, each of these types of semantic irregularity may interfere with the intelligibility of the messages produced in a given language. The international auxiliary languages are intended for purposes similar to those of the natural languages. Thus, their design approximates that of natural languages more closely than does the design of scientific languages. The major difference between an international auxiliary language and a natural language is that in the former the formal irregularities are completely removed, at least in principle. In some of these languages, attempts have also been made to remove the semantic irregularities, but these have not been conspicuously successful. On the whole, international auxiliary languages thus are something like a regularized version of natural languages. This is not the case with the scientific languages. The purpose of these languages is primarily to provide a wholly unambiguous and wholly regular notation for the

special scientific purposes that have been mentioned above. Thus, the emphasis is not only on formal but also on semantic regularity; because of the special purposes they serve, their structure is in many cases significantly different from that of a natural language. While international auxiliary languages were quite popular in the between-war period, nowadays, whenever scholars in linguistics and related disciplines speak of artificial languages, they usually have scientific languages in mind.

The final point at issue is the way in which linguistics as the science of language differs from other scientific disciplines that are also concerned with natural human language.

Linguistics can most readily be differentiated from other disciplines dealing with language by expanding its original definition to read: Linguistics is the science of language with language as its primary object of study. This means that linguists study language primarily for its own sake, while scholars in other disciplines have some additional ultimate object of study in mind when they deal with natural human language. Thus, psychologists will study language because of the light it sheds on human behavior in general, sociologists will study language because of the insights it offers for the study of social relations, anthropologists study language because of all it may tell us about human culture, and so on. In the last twenty years or so, a number of new fields have sprung up which represent crosses between linguistics and related fields: thus, psycholinguistics deals with the relation between language and behavior and represents a cross between linguistics and psychology, sociolinguistics deals with the relation between language and society and represents a cross between linguistics and sociology, ethnolinguistics deals with the relation between language and culture and represents a cross between linguistics and anthropology. Thus, the study of the broader ramifications of language is these days conducted primarily in these so-called "hyphenated" fields, and the province of linguistics proper is limited primarily to a

study of the structure of human language, without much regard to its functioning in the broader context. This is a somewhat narrow conception of linguistics, and in these materials a broader view will be taken: the concern will be not only with the structure of language, but also with its functions.

The scope of linguistics may vary. It may be concerned with language as a general phenomenon, or it may deal with a particular language or group of languages. The former study constitutes general linguistics, the latter the linguistics of a given language or linguistic grouping, such as English linguistics dealing with the English language, or Germanic linguistics dealing with the Germanic branch of the Indo-European language family to which English belongs.

These materials deal with general linguistics.

General linguistics is concerned with the study of the attributes of language in general. It is based on a number of generally accepted observations about language. The most important of these are the following:

(1) Language is patterned. This means that it exhibits regularities which transcend the idiosyncratic aspects of particular speech events.

(2) Language has functions. This means that it is used as a tool by a group--a speech community. The primary functions of language are those of communication and expression. Note that, while the study of functions can not ignore psychological, sociological and related considerations, language remains the primary object of study. Hence the consideration of functions remains within the scope of linguistics.

(3) Language changes through time.

(4) Language is diversified. There are many languages in the world with many different patterns. Within a particular language, there may also be diversification. Most conspicuous is that due to regional and social factors, namely, regional and social dialect differences. (Note that the term dialect is by linguists not used as a value term to indicate an imperfect or "corrupted" form of

speech. Rather, it is used as a technical term to designate one of the regional and/or social varieties of a language.)

These four attributes of language--patterning, function, change, diversification--are of basic significance for linguistic study. Any one of them may be chosen for special consideration, giving rise to different approaches to linguistics. The decision not to give equal weight to all the attributes of language does not imply that any of them can be ignored completely. It does mean, however, that one of these attributes is chosen as the object of detailed study. The remaining attributes are considered to the extent to which they have bearing on the object of study.

The concept of pattern does not necessarily imply the study of patterning. It is possible to study patterned phenomena individually. The latter approach is exemplified by the well-known field of etymology, the study of the history of individual words and expressions. The emphasis on patterning, on the other hand, leads to a study of language in terms of its structure. This is the approach of structural linguistics, which is followed here. In this approach, the questions asked are: what are the relevant elements of language, and how are they related to each other?

The contention here is that a genuine understanding of linguistic structure is possible without specific recourse to the study of change or diversification, but not without a detailed consideration of function. Change and diversification will therefore be considered only to the extent to which they are relevant to structure and function.

The branch of linguistics in which the major emphasis is on change, namely historical linguistics, will thus not fall within the scope of these materials. The discussion will be limited to synchronic linguistics, that is, the study of language at a given point in time, without specific concern with its development.

The branches of linguistics dealing with diversification will likewise not

be of primary concern. Linguistic typology, the classificatory study of the diversity of linguistic structures, will be considered only as part of a general discussion of structure. Similarly, there will be no detailed discussion of dialectology (the general study of regional dialects), nor of its special branch of dialect geography (the detailed study of the geographic distribution of individual dialect forms). On the other hand, consideration will be given to the bearing which dialectal differences, both regional and social, have on the functions of language.

The major emphasis will be on the relation of structure to function, that is, to the way in which language is used as a means of human communication and expression. The Czech linguist Mathesius has proposed the term "functional linguistics" for this dynamic conception of linguistic structure.

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